UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,283	11/19/2001	Munenori Iizuka	Q67302	8484

7590 04/12/2004

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3213

EXAMINER	
AUGHENBAUGH, WALTER	
ART UNIT	**PAPER NUMBER**
1772	

DATE MAILED: 04/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No.	Applicant(s)	
	09/988,283	IIZUKA ET AL.	
	Examiner	Art Unit	
	Walter B Aughenbaugh	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-12,14-21,23-25,27-36,38-45 and 47-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-12,14-21,23-25,27-36,38-45 and 47-50* is/are rejected.

7)☒ Claim(s) *6,7,11,24,30,31 and 48* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement of Applicant's Amendments

1. The amendments made in claims 1, 8, 12, 19, 23, 25, 32, 36, 43, 47, 49 and 50 in the Amendment filed January 14, 2004 (Amdt. C) have been received and considered by Examiner.

WITHDRAWN REJECTIONS

2. The 35 U.S.C. 102 rejections of claims 8-12, 14, 15, 17, 18, 36, 38, 39, 41, 42, 49 and 50 made of record in paragraphs 19 and 21 of Paper 11 have been withdrawn due to Applicant's amendments in Amdt. C.

3. The 35 U.S.C. 103 rejection of claims 6, 7, 30 and 31 repeated in paragraph 17 of Paper 11 has been withdrawn due to Applicant's amendments in Amdt. C.

4. The 35 U.S.C. 103 rejections of claims 6, 7, 16, 19-21, 23, 24, 30-35, 40, 43-45, 47 and 48 made of record in paragraphs 23-28 of Paper 11 have been withdrawn due to Applicant's amendments in Amdt. C.

REPEATED REJECTIONS

5. The 35 U.S.C. 103 rejection of claims 1, 3-5, 25, and 27-29 over Matsuura et al. in view of Nishimuro et al. made of record in paragraph 22 of Paper 11 has been repeated for the reasons previously made of record in paragraph 22 of Paper 11 and for the following reason that addresses the amendments made in claims 1 and 25 in Amdt. C: Matsuura et al. teach that the resin composition consists essentially of a polyamide resin as claimed, a low water absorption resin as claimed (i.e. polypropylene or polyphenylene sulfide, see paragraph 22 of Paper 11) and a conductive agent (col. 1, lines 11-13, col.1, line 64-col. 2, line 2 and col. 2, lines 29-37). The

combination of Matsuura et al. and Nishimuro et al. proposed in paragraph 22 of Paper 11 teaches the base body that has a cylindrical shape as claimed.

NEW OBJECTIONS

Claim Objections

6. Claims 6, 7, 11, 24, 30, 31 and 48 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The conductive resin composition cannot comprise any components other than those recited in the independent claims due to the phrase "consists essentially of".

NEW REJECTIONS

Claim Rejections - 35 USC § 112

7. Claims 6, 7, 11, 24, 30, 31 and 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The conductive resin composition cannot comprise any components other than those recited in the independent claims due to the phrase "consists essentially of".

Claim Rejections - 35 USC § 103

8. Claims 8-11 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. in view of Sakogawa et al.

Matsuura et al. teach a base body (organic polymer sheet) that is made of a conductive resin composition that consists essentially of a polyamide resin and a conductive agent such as

carbon powder (col. 2, lines 29-37 and col. 1, lines 11-13) used as an electrostatic recording sheet or an electrophotographic sensitive material (col. 5, lines 19-26). In regard to claim 32, Matsuura et al. teach a photosensitive layer formed on an outer peripheral surface of the base body (photoconductor coating, col. 5, lines 19-27). The recitation "for a photosensitive drum" in claim 8 is an intended use phrase that has not been given patentable weight, since it has been held that a recitation with respect to the manner in which a claimed article is intended to be employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQd 1647 (1987).

Matsuura et al. fail to teach that the base body has a cylindrical shape and Matsuura et al. fail to explicitly teach that the carbon powder conductive agent is carbon black having a dibutyl phthalate (DBP) oil absorption amount in a range of 130 ml/100g or more.

Sakogawa et al., however, disclose a conductive roller (corresponding to the base body as claimed) (col. 9, lines 6-17 and col. 10, lines 2-6, N.B. rollers have a cylindrical shape) formed of a resin composition comprising a resin base material and a conductive agent (col. 1, line 52-col. 2, line 17). Sakogawa et al. teach that the conductive agent is carbon black having a dibutyl phthalate (DBP) oil absorption amount of 50 to 300 ml/100g (col. 4, line 46-col. 5, line 6), a range that overlaps with the claimed range of 130 ml/100g or more. One of ordinary skill in the art would have recognized to have formed the conductive resin base body of Matsuura et al. into a cylindrical base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of a cylindrical base body as an electronic photographic charged roller as taught by Sakogawa et al. One of ordinary skill in the art would have also recognized to have used the carbon black having a dibutyl phthalate (DBP) oil

absorption amount of 50 to 300 ml/100g as the carbon powder of Matsuura et al. since carbon black having a dibutyl phthalate (DBP) oil absorption amount of 50 to 300 ml/100g is a notoriously well known conductive agent for use in a conductive resin composition as taught by Sakogawa et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the conductive resin base body of Matsuura et al. into a cylindrical base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of a cylindrical base body as an electronic photographic charged roller as taught by Sakogawa et al. and to have used the carbon black having a dibutyl phthalate (DBP) oil absorption amount of 50 to 300 ml/100g as the carbon powder of Matsuura et al. since carbon black having a dibutyl phthalate (DBP) oil absorption amount of 50 to 300 ml/100g is a notoriously well known conductive agent for use in a conductive resin composition as taught by Sakogawa et al.

In regard to claims 9 and 33, Sakogawa et al. teach that the content of the carbon black is in a range of 4 to 50, and more preferably, 5 to 20 parts by weight per 100 parts by weight of the resin (col. 5, lines 6-10), a range that overlaps with the claimed range of 30 wt% or less. In regard to claims 10 and 34, Sakogawa et al. teach that the polyamide is nylon 6 (col. 7, lines 25-28 and 52-63), which is a polyamide resin obtained from ε-caprolactam, as evidenced by US 6,221,547 to Iizuka et al. (col. 3, lines 26-33 of Iizuka et al.). In regard to claims 11 and 35, the carbon black of the conductive resin of Sakogawa et al. is an inorganic filler. The limitation "for reinforcement" is an intended use phrase that has not been given patentable weight, since it has been held that a recitation with respect to the manner in which a claimed article is intended to be

employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQd 1647 (1987).

9. Claims 12, 14, 15, 17, 18, 36, 38, 39, 41, 42, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. in view of Horgan et al.

Matsuura et al. teach a base body (organic polymer sheet) that is made of a conductive resin composition that consists essentially of a polyamide resin and an inorganic filler (conductive powder, col. 2, lines 29-37 and col. 1, lines 11-13) used as an electrostatic recording sheet or an electrophotographic sensitive material (col. 5, lines 19-26). In regard to claim 36, Matsuura et al. teach a photosensitive layer formed on an outer peripheral surface of the base body (photoconductor coating, col. 5, lines 19-27). The recitations "for a photosensitive drum" in claim 12 and "for reinforcement" in claims 12 and 36 are intended use phrases that have not been given patentable weight, since it has been held that a recitation with respect to the manner in which a claimed article is intended to be employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQd 1647 (1987).

Matsuura et al. fail to teach that the base body has a cylindrical shape and Matsuura et al. fail to explicitly teach that the inorganic filler is a microspherical material in the form of spherical particles having an average particle size in a range of 50 μm or less as claimed in claims 12 and 36 and that the inorganic filler is a flake material as claimed in claims 49 and 50.

In regard to claims 12 and 36, Horgan et al., however, disclose an electrostatographic (more specifically, electrophotoconductive) imaging member comprising a supporting substrate layer (corresponding to the base body for a photosensitive drum as claimed) having an

electrically conductive ground strip layer (col. 1, lines 5-9 and col. 31, lines 26-30). Horgan et al. teach that the base body is cylindrical (col. 4, lines 20-25). Horgan et al. disclose that the ground strip layer conductive composition comprises an inorganic filler that is microspherical inorganic material in the form of a plurality of spherical particles having an average particle size of less than about 10 μm, a range that overlaps with the claimed range of 50 μm or less (col. 15, lines 22-30 and col. 16, lines 9-27). One of ordinary skill in the art would have recognized to have formed the conductive resin base body of Matsuura et al. into a cylindrical base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of a cylindrical base body as an electrophotoconductive imaging member as taught by Horgan et al. One of ordinary skill in the art would have also recognized to have used the microspherical inorganic material in the form of a plurality of spherical particles having an average particle size of less than about 10 μm of Horgan et al. as the conductive inorganic filler of Matsuura et al. since it is notoriously well known to use spherical inorganic particles having an average particle size of less than about 10 μm as conductive particles for use in a conductive resin composition as taught by Horgan et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the conductive resin base body of Matsuura et al. into a cylindrical base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of a cylindrical base body as an electrophotoconductive imaging member as taught by Horgan et al. and to have used the microspherical inorganic material in the form of a plurality of spherical particles having an average particle size of less than about 10 μm of Horgan et al. as the conductive inorganic filler

of Matsuura et al. since it is notoriously well known to use spherical inorganic particles having an average particle size of less than about 10 μm as conductive particles for use in a conductive resin composition as taught by Horgan et al.

In regard to claims 14 and 38, Horgan et al. teach that the inorganic filler is crystalline particles of any suitable shape such as a granular or elliptical shape having a relatively smooth outer surface and formed of silicon dioxide (which is a glass composition) (col. 16, line 65-col. 17, line 23). The structure of the particles taught by Horgan et al., i.e. particles of any suitable shape such as a granular or elliptical shape having a relatively smooth outer surface, corresponds to that of a bead, and since the beads are formed of silicon dioxide, Horgan et al. teach glass beads as the inorganic filler.

In regard to claims 15 and 39, Horgan et al. teach that the inorganic filler is present in a range of from about 5 to about 20 percent by weight based on the total weight of the conductive composition, a range that overlaps with the claimed range of 10 to 25 wt % (col. 17, lines 24-29).

In regard to claims 49 and 50, Horgan et al. discloses the imaging member as discussed above and that the ground strip layer conductive composition comprises an inorganic filler that is a plurality of inorganic flakes (col. 15, lines 22-30 and col. 16, lines 9-27). Therefore, one of ordinary skill in the art would have recognized to have used the flakes of Horgan et al. as the conductive inorganic filler of Matsuura et al. since it is notoriously well known to use conductive inorganic flakes as conductive particles for use in a conductive resin composition as taught by Horgan et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the conductive resin base body of Matsuura et al. into a cylindrical

base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of a cylindrical base body as an electrophotoconductive imaging member as taught by Horgan et al. and to have used the flakes of Horgan et al. as the conductive inorganic filler of Matsuura et al. since it is notoriously well known to use conductive inorganic flakes as conductive particles for use in a conductive resin composition as taught by Horgan et al.

In regard to claims 17 and 41, Horgan et al. teach that the flake inorganic material is aluminum (col. 16, line 65-col. 17, line 4).

In regard to claims 18 and 42, Horgan et al. teach that the flake inorganic filler is present in a range of from about 5 to about 20 percent by weight based on the total weight of the conductive composition, a range that overlaps with the claimed range of 10 to 25 wt % (col. 17, lines 24-29).

10. Claims 16 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. in view of Horgan et al. and in further view of Yoshinaka et al.

Matsuura et al. and Horgan et al. teach the base body and photosensitive drum as discussed above. Matsuura et al. and Horgan et al. fail to teach that the flake inorganic material is in the form of flakes each having an aspect ratio (length/thickness) in a range of 10 to 70. Yoshinaka et al., however, teach an electrophotographic photosensitive member comprised of a cylindrical support (base body) and a photosensitive layer formed on an outer peripheral surface of the base body (col. 2, lines 53-56). Yoshinaka et al. teach that the support satisfies the strength requirements for a support (col. 10, lines 42-46). Yoshinaka et al. teach that the support is composed of a resin and an inorganic filler (tetrapod-like zinc oxide whiskers, col. 10, lines 43-

44) that provide the required strength to the support (col. 10, lines 42-44, Figures 1 and 3, and col. 12, lines 25-55). Yoshinaka et al. teach that the zinc oxide whiskers are comprised of a central part and extending to four different axial directions from this central part (col. 11, lines 61-64). Examiner interprets the morphology of the "tetrapod-like zinc oxide whiskers" taught by Yoshinaka et al. to be a flake morphology. Yoshinaka et al. teach that the whiskers have a central part and four separate needle crystals, where the diameter of the base of the needle crystals (equivalently the thickness as claimed) is 0.7 to 14 μm and the length of the needle crystals from base to the top of the needle crystal is from 3 to 200μm so that both the dispersion of the flakes and the stability in the electrical conductivity of the composition are suitable (col. 11, line 61 – col. 12, line 12). Since the claimed aspect ratio range is completely encompassed by this teaching of Yoshinaka et al., one of ordinary skill in the art would have recognized to have fabricated the flakes of Matsuura et al. and Horgan et al. such that the flakes have an aspect ratio (length/thickness) in the range of 10 to 70 so that both the dispersion of the flakes and the stability in the electrical conductivity of the composition are suitable as taught by Yoshinaka et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have fabricated the flakes of Matsuura et al. and Horgan et al. such that the flakes have an aspect ratio (length/thickness) in the range of 10 to 70 so that both the dispersion of the flakes and the stability in the electrical conductivity of the composition are suitable as taught by Yoshinaka et al.

11. Claims 19, 20, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. in view of Kito et al. (Patent Abstracts of Japan, publication number 62-141565) and in further view of Minemura et al.

Matsuura et al. teach a base body (organic polymer sheet) that is made of a conductive resin composition that consists essentially of a polyamide resin and an inorganic filler (conductive powder, col. 2, lines 29-37 and col. 1, lines 11-13) used as an electrostatic recording sheet or an electrophotographic sensitive material (col. 5, lines 19-26). In regard to claim 43, Matsuura et al. teach a photosensitive layer formed on an outer peripheral surface of the base body (photoconductor coating, col. 5, lines 19-27). The recitations "for a photosensitive drum" in claim 19 and "for reinforcement" in claims 19 and 43 are intended use phrases that have not been given patentable weight, since it has been held that a recitation with respect to the manner in which a claimed article is intended to be employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQd 1647 (1987).

Matsuura et al. fail to teach that the base body has a cylindrical shape and Matsuura et al. fail to explicitly teach that the inorganic filler is a fibrous inorganic material in the form of fibers each having a length ranging from 8 to 50 μm and a diameter ranging from 0.1 to 5 μm and that the base body has a surface roughness such that a center line average height Ra is in a range of less than 0.2 μm and a maximum height Rmax is in a range of less than 0.8 μm.

Kito et al., however, disclose a cylindrical electrophotographic sensitive base body formed from a resin having a photosensitive layer formed on an outer peripheral surface of the base body. Kito et al. disclose that a conductive powder in the form of whiskers that are single

crystal fibers of potassium titanate are included in the resin in order to render the resin conductive. Kito et al. teach that the average fiber length of the potassium titanate fibers is 8-20 microns and the average fiber diameter is 0.2-0.7 microns, ranges that overlap with those of the fibers claimed in the instant application. Therefore, one of ordinary skill in the art would have recognized to have formed the conductive resin base body of Matsuura et al. into a cylindrical base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of an electrophotographic sensitive base body as taught by Kito et al. and one of ordinary skill in the art would have recognized to have used the potassium titanate fibers of Kito et al. as the conductive powder of Matsuura et al., since it is notoriously well known to use potassium titanate fibers having an average fiber length of 8-20 μm and an average fiber diameter of 0.2-0.7 μm as an electroconductive filler for resin in order to render the resin electroconductive as taught by Kito et al.

Furthermore, Minemura et al. disclose a photoreceptor comprising an electroconductive substrate and a photoconductive layer (the electroconductive substrate corresponds to the base body for a photosensitive drum that has a cylindrical shape as claimed in claim 19) (col. 5, lines 40-46, see photoreceptor drum, item 1, Fig. 1 and col. 20, lines 16-17). Minemura et al. teach that the base body is formed from a composition comprising resin and an electroconductive powder such as metal oxide (corresponding to the inorganic filler as claimed) (col. 5, lines 47-54 and col. 6, lines 9-14). Minemura et al. teach that the base body has a surface roughness such that a center line average height Ra is approximately from 0.05 to 0.80 μm (col. 7, lines 59-60 and col. 8, lines 8-10), a range that overlaps with the claimed range of less than 0.2 μm, and that the maximum height Rmax is less than 0.8μm (see Table 1, col. 21, lines 22-44, wherein Rmax

values of 0.3 and 0.5 are included). Minemura et al. teach that excellent properties of the resultant image were attained with specimens having the Ra and Rmax values claimed in the instant application (col. 28, line 49-col. 29, line 28, Table 2, col. 30 and Table 3, col. 31). Therefore, one of ordinary skill in the art would have recognized to have formed the base body of Matsuura et al. such that the surface roughness of the base body is characterized by a center line average height Ra of approximately from 0.05 to 0.80 μm and a maximum height Rmax of less than 0.8μm in order to attain an image having excellent image properties as taught by Minemura et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the conductive resin base body of Matsuura et al. into a cylindrical base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of an electrophotographic sensitive base body as taught by Kito et al., to have used the potassium titanate fibers of Kito et al. as the conductive powder of Matsuura et al. since it is notoriously well known to use potassium titanate fibers having an average fiber length of 8-20 μm and an average fiber diameter of 0.2-0.7 μm as an electroconductive filler for resin in order to render the resin electroconductive as taught by Kito et al. and to have formed the base body of Matsuura et al. such that the surface roughness of the base body is characterized by a center line average height Ra of approximately from 0.05 to 0.80 μm and a maximum height Rmax of less than 0.8μm in order to attain an image having excellent image properties as taught by Minemura et al.

12. Claims 21 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. in view of Kito et al. (Patent Abstracts of Japan, publication number 62-141565) and in further view of Minemura et al. and in further view of Horgan et al.

Matsuura et al., Kito et al. and Minemura et al. teach the base body and photosensitive drum as discussed above. Matsuura et al., Kito et al. and Minemura et al. fail to explicitly teach that the content of the fibrous inorganic material is in a range of 10 to 25 wt% on the basis of the total weight of the conductive resin composition. Horgan et al., however, disclose an electrostatographic imaging member comprising a supporting substrate layer (corresponding to the base body for a photosensitive drum as claimed) having an electrically conductive ground strip layer (col. 31, lines 26-30) formed from a conductive resin composition that is rendered conductive by conductive filaments (i.e. fibers) that are present in an amount of less than 35 wt% based on the total weight of the conductive resin composition so that the ground strip layer has a suitable flexibility (col. 16, lines 9-64). Therefore, one of ordinary skill in the art would have recognized to have used the fibers of Kito et al. as the conductive powder of the base body of Matsuura et al., Kito et al. and Minemura et al. in the amount of less than 35 wt% (such as the range of 10-25 wt. % as claimed) based on the total weight of the composition in order to render the composition conductive while also providing the base body with a suitable flexibility as taught by Horgan et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the fibers of Kito et al. as the conductive powder of the base body of Matsuura et al., Kito et al. and Minemura et al. in the amount of less than 35 wt% (such as the range of 10-25 wt. % as claimed) based on the total weight of the composition in order to render

the composition conductive while also providing the base body with a suitable flexibility as taught by Horgan et al.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimal concentration of conductive fiber based on the total weight of the resin composition in regard to the balance between conductivity and flexibility as taught by Horgan et al. depending on the desired end result, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art in the absence of unexpected results. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

13. Claims 23, 24, 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohri et al. in view of Horgan et al.

Mohri et al. teach an image receiving sheet for electrophotography having an image receiving layer (item 42, Fig. 1) formed on a base (item 41, Fig. 1) (col. 1, lines 35-39, col. 8, lines 34-40). Mohri et al. teach that the resin of the image receiving layer is polyamide (col. 9, lines 23-27). Mohri et al. teach that the image receiving layer has a loss tangent (equivalently, tan δ) of 0.01 to 10 (col. 18, line 64-col. 19, line 11 and col. 64, lines 29-35).

Mohri et al. fail to teach that the sheet is a base body that has a cylindrical shape, that the polyamide resin of the base body is conductive and, in regard to claim 47, that a photosensitive layer is formed on the base body.

Horgan et al., however, disclose an electrostatographic (more specifically, electrophotoconductive) imaging member comprising a supporting substrate layer (corresponding to the base body for a photosensitive drum as claimed) having an electrically

conductive ground strip layer (col. 1, lines 5-9 and col. 31, lines 26-30). Horgan et al. teach that the base body is cylindrical (col. 4, lines 20-25). Horgan et al. disclose that the ground strip layer conductive composition comprises a conductive inorganic filler (col. 15, lines 22-30 and col. 16, lines 9-27). Therefore, one of ordinary skill in the art would have recognized to have formed the sheet of Mohri et al. into a cylindrical base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of a cylindrical base body as an electrophotoconductive imaging member as taught by Horgan et al. and to have added a conductive inorganic filler to the resin composition of Mohri et al. in order to render the resin composition of Mohri et al. conductive as taught by Horgan et al.

In regard to claim 47, Horgan et al. teach that at least one electrophotographic imaging layer (corresponding to the photosensitive layer formed on the cylindrical base body as claimed in claim 47) is adjacent the supporting substrate layer (col. 31, lines 26-31); the combination of the at least one electrophotographic imaging layer and the supporting substrate layer constitutes the photosensitive drum as claimed in claim 47. Therefore, one of ordinary skill in the art would have recognized to have formed a photosensitive layer on the sheet of Mohri et al. in order to form a photosensitive drum as taught by Horgan et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the sheet of Mohri et al. into a cylindrical base body since it is notoriously well known to one of ordinary skill in the art to use an electrophotographic sensitive sheet in the form of a cylindrical base body as an electrophotoconductive imaging member as taught by Horgan et al., to have added a conductive inorganic filler to the resin composition of Mohri et al. in order to render the resin composition of Mohri et al. conductive as taught by

Horgan et al. and to have formed a photosensitive layer on the sheet of Mohri et al. in order to form a photosensitive drum as taught by Horgan et al.

ANSWERS TO APPLICANT'S ARGUMENTS

14. Applicant's arguments on pages 17-18 of Amdt. C regarding the 35 U.S.C. 103(a) rejection of claims 1, 3-5, 25 and 27-29 over Matsuura et al. in view of Nishimuro et al. have been fully considered but are not persuasive. Applicant argues that "the presence of the thin metal oxide layer in Matsuura takes Matsuura out of the scope of the present claims", but the "thin metal oxide layer in Matsuura" does not correspond to the base body; consequently, whether or not "Nishimura fails to teach or suggest the removal of the thin metal oxide layer from the Matsuura composition" as Applicant alleges is irrelevant. Applicant argues that "Nishimura fails to disclose, teach or suggest the combination of a polyamide resin and a lower water absorption resin", but Matsuura et al. teach "a mixed resin of a polyamide resin and a low water absorption resin" as claimed as made of record in paragraph 22 of Paper 11; in response to Applicant's piecemeal analysis of the references, it has been held that one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. *In re Keller*, 208 USPQ 871 (CCPA 1981). Despite Applicant's argument to the contrary, a prima facie case of obviousness has been established.

15. The remainder of Applicant's arguments presented on pages 15-17 and 19-23 of Amdt. C in regard to the remainder of the rejections made of record in Paper 11 are moot due to the withdrawal of these rejections in this Office Action.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is 571-272-1488. The examiner can normally be reached on Monday-Thursday from 9:00am to 6:00pm and on alternate Fridays from 9:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter B. Aughenbaugh
03/31/04 WBA

/Harold Pyon/
HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

4/1/04